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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/576,656	05/22/2000	Pierre Zakarauskas	11336/622	3288

7590 06/17/2005

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EXAMINER

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ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/576,656

**Applicant(s)**

ZAKARAUSKAS ET AL.

**Examiner**

Lun-See Lao

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Introduction*

1. This is response to the amendment filed 02-22-2005. Claims 1-18 are pending.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 2 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Graumann (US PAT. 5,737,407).

Consider claim 14, Graumann teaches an apparatus comprising a computer-readable storage medium having executable instructions that enable the computer to (see fig.1 and col.3 line 50-col.4 line 3):

determine information about an on/off (do not mute/mute) state of a microphone by comparing an acoustic signal to a threshold value (such as VDA-RX INDICATE RECEIVING SPEECH) to determine the on/off (do not mute/mute) state of said microphone; and continuously provide feedback based on said information (see FIGS.4A-4C and col.4 line 26-col.5 line 5).

Consider claim 2, there is the method claim corresponding to apparatus claim 14. See previous apparatus claim 14 rejection.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 7-8, and 17-18 rejected under 35 U.S.C. 103(a) as being unpatentable over Graumann (US PAT. 5,737,407) in view of Park et al. (US PAT. 5,590,241).

Consider claim 1, Graumann teaches an acoustic signal monitoring system, comprising:

a time series analyzer (see fig.4a) configured to determine and provide a continuous feedback about an on/off (do not mute/mute) state of a microphone to a user, said analyzer also enabling gain adjustment (such as muting system) to prevent signal clipping or amplifier overloading (see FIGS.4A-4C and col.4 line 26-col.5 line 5); but Graumann does not clearly teach a parameter adjustment element operating to calculate frequency domain parameters, said frequency domain parameters providing information about placement of the microphone with respect to an audio source, where said information enables the user to take appropriate actions to enhance operation of an audio system.

However, Park teaches a parameter adjustment element (see fig.1, 37) operating to calculate frequency domain parameters, said frequency domain parameters providing

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information about placement of the microphone with respect to an audio source (voice), where said information enables (such as unvoice and voice) the user to take appropriate actions to enhance operation of an audio system (by user's mouth closer or away from the microphone and see col.4 lines 10-col.5 line29).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Park into Graumann to provide a speech processing system which works well in extremely noisy environments and an adaptive filter which has better responsiveness are needed.

Consider claim 7, Graumann teaches an apparatus comprising a computer-readable storage medium having executable instructions that enable the computer to (see col.3 line 50-col.4 line 4):

computing signal to noise ratio of said acoustic signal (see figs. 14 and 16); and continuously providing a feedback (see figs. 14, 16) based on said signal to noise ratio (see col.8 line 37-col.9 line 67)), but Graumann does not clearly teach performing frequency domain transform of said acoustic signal.

However, Park teaches a performing frequency domain transform of said acoustic signal (see col.4 lines 10-col.5 line29).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Park into Graumann to provide a speech processing system for enhancing speech signal in an noisy environments.

Consider claim 3, there is the method claim corresponding to apparatus claim 7. See previous apparatus claim 7 rejection.

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Consider claim 8 Park teaches the acoustic signal monitoring system of further comprising:

a frequency transform unit (see fig.1, 37) configured to transform incoming acoustic signal into frequency domain for calculation in said parameter adjustment element (see col. 4 lines 10-col.5 line 29).

Consider claim 17, Graumann teaches the acoustic signal monitoring system of said time series analyzer configured to determine said on/off (do not mute/mute) state of a microphone by comparing signal from said microphone to a threshold value (such as VDA-RX INDICATE RECEIVING SPEECH) (see FIGS.4A-4C and col.4 line 26-col.5 line 5).

Consider claim 18 Park teaches the acoustic signal monitoring system of the frequency domain (see fig.1, 37) parameters is a frequency domain signal to noise ratio (see col.4 line 10 –col.5 line 29).

6. Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graumann (US PAT. 5,737,407) in view of Nevins (US PAT. 5,949,886).

Consider claim 15, Graumann does not clearly teach performing detection of signal clipping.

However, Nevins teaches the apparatus of a computer readable storage medium further having executable instructions that enable the computer to:

performing detection of signal clipping (see col.4 line 25-col.5 line 35).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Nevins into Graumann to provide a speech processing system for enhancing speech signal in an noisy environments.

Consider claim 4, there is the method claim corresponding to apparatus claim 15.

See previous apparatus claim 15 rejection.

7. Claims 10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graumann (US PAT. 5,737,407) in view of Anderson (US PAT. 5,714,997).

Consider claim 16, Graumann teaches the apparatus of the computer-readable storage medium having executable instructions that enable the computer(see fig.1 and col.3 line 50-col.4 line 4): to determine information about an on/off (do not mute/mute) state of a microphone by comparing an acoustic signal to a threshold value (such as VDA-RX INDICATE RECEIVING SPEECH) to determine the on/off (do not mute/mute) state of said microphone further comprises executable instructions that enable the computer to compare said value to a threshold value to determine the on/off state of said microphone (see FIGS.4A-4C and col.4 line 26-col.5 line 5); but Grumann does not teach to calculate the RMS value of said signal; and compare said RMS value to a threshold value..

However, Anderson teaches to calculate the RMS value of said signal; and compare said RMS value to a threshold value to determine the sound to be arriving at a microphone (see col.30 lines 33-50).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Anderson into Graumann to provide processing the received audio signals to estimate, for individual periods of time, spatial points from which individual ones of the sounds emanate, and audio signals of the individual ones of the sound; and generating the encoded data to include the spatial points and the audio signal.

Consider claim 10, this is the method claim corresponding to apparatus claim 16. See claim 16 for rejection.

8. Claims 5-6, 9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graumann (US PAT. 5,737,407) as modified by Park et al (US PAT. 5,590,241) as applied to claims 1, 3 and 7 above, and further in view of Nevins (US PAT. 5,949,886).

Consider claim 11, Graumann teaches an apparatus comprising a computer-readable storage medium having executable instructions that enable the computer to (see col.3 line 50-col.4 line 4); but Graumann and Park do not teach

use said computed signal to noise ratio to calculate gain adjustment for the amplifier.

However, Nevins teaches the method further comprising: the method further comprising of using said computed signal to noise ratio to calculate gain adjustment for the amplifier (see figs.5 and 7-11 col.5 lines 7-63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Nevins into the teaching Graumann and



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Park to provide a speech processing system for enhancing speech signal in an noisy environments.

Consider claim 5, there is the method claim corresponding to apparatus claim 15.  
See previous apparatus claim 11 rejection.

Consider claim 12, Nevins teaches the apparatus of said signal to noise ratio provides information about placement of a microphone with respect to an audio source (see col.5 lines 43-54).

Consider claim 6, there is the method claim corresponding to apparatus claim 15.  
See previous apparatus claim 12 rejection.

Consider claims 9, 13, Nevins teaches the acoustic signal monitoring system of further comprising:

performing puff (silence) detection using said calculated said signal to noise ratio; and advising the user to adjust placement of the microphone that generates said signal (see col.5 lines 7-63).

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

11. Any response to this action should be mailed to:

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Mail Stop \_\_\_\_ (explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Facsimile responses should be faxed to:

**(703) 872-9306**

Hand-delivered responses should be brought to:


Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (571) 272-7501. The examiner can normally be reached on Monday-Friday from 8:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (571) 272-7499.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (571) 272-2600.

Lao,Lun-See  
Patent Examiner  
US Patent and Trademark Office  
Knox  
571-272-7501

  
**DUC NGUYEN**  
**PRIMARY EXAMINER**

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